March 17, 1997

MEMORANDUM

TO: Orville D. Green, Assistant Administrator
Air & Hazardous Waste

FROM: Martin Bauer, Chief
Air Quality Permitting Bureau
Air & Hazardous Waste

RE: Issuance of Tier II Operating Permit #027-00056
Zilog, Inc. (Nampa) - Silicon Computer Chip Manufacturing

PURPOSE

The purpose of this memorandum is to satisfy the requirements of IDAPA 16.01.01 Sections 400 through 406 (Rules for the Control of Air Pollution in Idaho) for issuing Operating Permits.

PROJECT DESCRIPTION

This project involves the issuance of a Tier II Operating Permit (OP) that limits the potential to emit of oxides of nitrogen (NO_X) and volatile organic compounds (VOCs) from Buildings 1 and 2 at Zilog's Nampa, Idaho, facility.

SUMMARY OF EVENTS

On April 28, 1995, DEQ received a Tier II OP application from Zilog, Incorporated. On August 31, 1995, DEQ deemed Zilog's Tier II OP application complete.

On January 27, 1997, a proposed Tier II OP was issued for public comment. The public comment period was from February 12, 1997, through March 17, 1997. On February 26, 1997, DEQ received comments about the content of the proposed OP. These comments were addressed by DEQ in the response package.

RECOMMENDATIONS

Based on review of application materials and state and federal rules and regulations, the Bureau staff recommends Zilog, Incorporated, be issued a Tier II OP. Staff members also recommend that the facility be notified in writing of the obligation to pay permit application fees for their Tier II OP.

ODG\MB\ABC:jrj...\zilog\zilog-fMM

cc: S. West, Boise Regional Office
Source File
OP File Manual
COF

March 17, 1997

MEMORANDUM

TO: Martin Bauer, Chief
Air Quality Permitting Bureau
Air & Hazardous Waste

FROM: Almer B. Casile, Air Quality Engineer
Air Quality Permitting Bureau
Operating Permits Section
Dan Salgado, Air Quality Engineer
Air Quality Permitting Bureau
New Source Review Section

THROUGH: Susan J. Richards, Air Quality Permits Manager
Air Quality Permitting Bureau

SUBJECT: Technical Analysis for Tier II Operating Permit #027-00056
Zilog, Incorporated; Nampa - Silicon Computer Chip Manufacturing

PURPOSE

The purpose of this memorandum is to satisfy the requirements of IDAPA 16.01.01 Sections 400 through 406 (Rules for the Control of Air Pollution in Idaho) for issuing Operating Permits.

FACILITY DESCRIPTION

The facility is a silicon-based semiconductor computer chip manufacturing facility. Building 1 and Building 2's manufacturing process involves, but is not limited to, implantation, photolithography, etching, cleaning, and deposition. Each of these processes requires the use of several chemicals, many of which are considered toxic air pollutants. Building 1 houses Mod I and Mod II process lines. Building 2 houses the Mod III process line.

Control equipment at the facility consist of the following:

Scrubbers are used to control pollutant emissions from the inorganic etching and cleaning baths, process gas control units, and other gas operations (Implanters, Etching, Diffusion, and Thin Film).

Process gas control units consist of controlled combustion systems that guarantee safe ignition of pyrophoric, flammable, and toxic gases after their use in the wafer fabrication process. Emissions from these units are directed to the scrubbers.

Equipment located at Building 1 currently consists of the following:

Packed Wet Scrubber - Harrington Industrial Plastics Incorporated, Model HPH 89-3;

Packed Wet Scrubber - Beverly Pacific, Model PSH 2440;

Packed Wet Scrubber - Heil Process, Model 760 Series Fume Scrubber;

Boiler #1 - Cleaver Brooks Boiler, Model CB-700-150, with a rated capacity of 6.28 million Btu per hour;

Boiler #2 - Cleaver Brooks Boiler, Model CB-700-125, with a rated capacity of 5.23 million Btu per hour;

Boiler #3 - Cleaver Brooks Boiler, Model CB-700-200, with a rated capacity of 8.37 million Btu per hour;

Emergency Generator #1 - Diesel-Fired, with a rated capacity of 665 hp; and

Emergency Generator #2 - Diesel-Fired, with a rated capacity of 1482 hp.

Equipment located at Building 2 currently consists of the following::

Acid Scrubbers (2) - Harrington Industrial Plastics, Incorporated, Model ECH-78.5 12-5LB;

Boiler #1 - Kewanee, Classic III, Natural Gas-Fired Boiler with a rated capacity of 8.37 million Btu per hour (MMBtu);

Boiler #2 - Kewanee, Classic III, Natural Gas-Fired Boiler with a rated capacity of 8.37 million Btu per hour (MMBtu);

Emergency Generator #1 - Caterpillar, Model 3508 with a rated capacity of 1482 horsepower; and

Emergency Generator #2 - Caterpillar Model 3512B with a rated capacity of 1,818 horsepower.

PROJECT DESCRIPTION

This project involves the issuance of a Tier II Operating Permit (OP) that limits the potential to emit of oxides of nitrogen (NO_x) and volatile organic compounds (VOCs) from Buildings 1 and 2 at Zilog's Nampa, Idaho, facility.

SUMMARY OF EVENTS

On April 28, 1995, DEQ received a Tier II OP application from Zilog, Incorporated. On May 28, 1995, the application was determined incomplete. Zilog responded to the incompleteness letter on August 1, 1995. On August 31, 1995, DEQ deemed Zilog's Tier II OP application complete. On September 8, 1995, DEQ requested an electronic copy of all calculations and emissions related submitted by Zilog. On October 3, 1995, DEQ requested an extension to the draft permit issuance deadline because it was waiting for responses to two requests for information sent to Zilog on September 25, 1995, and September 29, 1995. On October 24, 1995, Zilog granted this request. Zilog submitted information on November 6, 1995, and November 20, 1995. In response to the November 25, 1995, submittal, DEQ requested that Zilog grant them an extension to the draft permit issuance deadline in order to properly process the information. Zilog granted this request on November 28, 1995. On January 3, 1996, Zilog requested a thirty (30) day extension to the January 10, 1996, draft permit issuance deadline. A public comment period was held from February 15, 1996, to March 18, 1996. Zilog submitted comments on March 18, 1996.

On April 26, 1996, as per Zilog's request, DEQ provided Zilog with an opportunity to review the final operating permit. Zilog requested that the "final" OP be held by DEQ so that Zilog could have an opportunity to negotiate the final wording of the permit. Negotiations were held and on June 7, 1996, Zilog submitted proposed compliance demonstration language. Additional language was received on July 10, 1996. DEQ then requested further information on July 26, 1996, and to which Zilog responded to on July 31, 1996. On August 2, 1996, DEQ faxed Zilog proposed compliance demonstration method. Information was again requested on September 23, 1996. Information was submitted on November 6, 1996, December 3, 1996, and January 8, 1997.

On January 27, 1997, a proposed Tier II OP was issued for public comment. The public comment period was from February 12, 1997, through March 14, 1997. On February 26, 1997, DEQ received comments about the content of the proposed OP. These comments were addressed by DEQ in the response package.

DISCUSSION

1. Area Classification

The facility is located in Nampa, Idaho, which is classified as attainment or unclassifiable for all criteria pollutants.

2. Emission Estimates

Emissions were estimated by the applicant for oxides of nitrogen (NO_x), volatile organic compounds (VOC), hazardous air pollutants (HAPs) and toxic air pollutants (TAPs) and were reviewed by Dan Salgado and Almer Casile, DEQ Air Quality Engineers. Modeling data was also reviewed by Dan Salgado and Almer Casile. Emissions estimates are provided in Appendix A. Please note that "Zilog has assumed that all chemicals containing VOCs entering the facility are released to the atmosphere except for the quantities that are discharged as wastewater or removed as solvent (i.e liquid) waste". Staff has modified the emission estimates included in appendix A to incorporate the VOCs in the wastewater stream into the VOC emission estimates. Staff has not provided Zilog with the wastewater discount because the emission would not be captured by the wastewater, but instead emitted offsite.

Zilog has not associated the release of VOC and HAP emissions generated by MOD I and II process lines at Building 1 and MOD III process line at Building 2 with any specific point of release, other than the buildings themselves. It is for this reason that the proposed permit limits VOC emissions on a facility-wide basis (i.e., a plant site emission limit, PSEL). Please note that the proposed permit limits for VOC do not incorporate any controls.

Per Zilog's application materials and supplemental data, the potential to emit of NO_x VOCs, and HAPS are permitted to below 100 tons per year (T/yr). Short term emission limits are set at pounds per month in order to give the facility operational flexibility. It should be noted that Section 2.2.2 was written to provide the facility operational flexibility by allowing it to use any chemical compound containing VOCs, as long as its use did not contribute to the exceedence of the emission rate limits and total calculated pounds of VOCs used minus total calculated pounds of VOCs shipped as hazardous waste limits. However, this section does not allow the facility to introduce any chemical compound into the process that would cause a new HAP, or TAP, or new pollutant not provided in the application to be emitted, nor does it allow changes that would trigger a new applicable requirement. Section 2.2.2 does allow physical changes and/or changes in the method of operation so long as the changes conform to the operating, monitoring, and reporting requirements of the proposed permit.

Section 2.2.2 currently contains the following language:

> "No Permit to Construct pursuant to IDAPA 16.01.01.200 et seq., is required for physical changes and/or changes in the method of operation in NB1 and NB 2, excluding changes to combustion equipment listed in Sections 1.1 and 1.2 of this Permit, so long as the following conditions are met:
>
> a) Emissions of volatile organic compounds (VOCs) from NB1 and NB 2 shall not exceed the emission rate listed in Appendix A.
>
> b) The physical changes and/or changes in the method of operation in NB1 and NB 2 shall be subject to Sections 2, 3, and 4 of this permit.
>
> c) The physical changes in and/or changes in the method of operation shall comply with all applicable requirements, including, but not limited to, volatile organic compounds (VOC) subject to IDAPA 16.01.01.210 of Rules for the Control of Air Pollution in Idaho; and
>
> d) The physical changes and/or changes in the method of operation, that increase any air pollutant other than volatile organic compounds (VOCs), shall comply with IDAPA 16.01.01.220 through 225 of Rules for the Control of Air Pollution in Idaho."

By including the above language, the proposed permit gives Zilog pre-approved Permit to Construct status, so long as Zilog meets the conditions a through d of Section 2.2.2. It should be noted that this pre-approved status only applies to physical changes and/or changes in the method of operation that affect VOC emissions. Physical changes and/or changes in the method of operation that affect emissions of any pollutant other than VOC is still subject to Section 200 of the Rules. However, it is quite possible that a facility can make a change that is subject to Section 200 of the Rules and that, in accordance with Section 200 of Rules, no PTC is required. In other words, a facility may exempt themselves according to the provisions in Sections 220 through 225 of the Rules.

In order to ensure compliance with the plant site VOC emission limits, short- and long-term limits are placed on the difference between the total calculated pounds of VOCs used and the total calculated pounds of VOCs shipped as hazardous waste. It should be noted that the annual emission rate limit is based on a twelve (12) month rolling total. The annual emission limit in the proposed permit reflects the facility's current potential to emit. A review of submitted HAP emission data reveals that the facility is currently minor without any federally enforceable limits. However, the facility has been permitted at its uncontrolled HAP emission rate to establish it as a minor for HAPs and allow it the maximum operational flexibility.

As submitted by Zilog, emissions of VOCs are to be determined as follows:

Mass of Constituents Used and Shipped as Hazardous Waste

$M_{CONSITUENT\ USED}$ = %COMPOSITION*M_{BOTTLE}*#BOTTLES

where:

$M_{CONSITUENT\ USED}$ = mass, in lbs., of each chemical constituent containing VOCs used;
%COMPOSITION = decimal percent by weight composition of each constituent of each chemical;
M_{BOTTLE} = bottle size, in pounds (lbs.),of each chemical;
#BOTTLES = number of bottles of used;

$P_{CONSTITUENT}$ = $(M_{CONSITUENT\ USED} \div M_{TOTAL\ USED})$

where:

$P_{CONSTITUENT}$ = calculated decimal percentage of chemical constituent containing VOCs used found in hazardous waste;
$M_{TOTAL\ USED}$ = total mass, in lbs., of chemicals used found in the hazardous waste;

M_{WASTE} = $M_{SHIPMENT} * P_{CONSTIUENT}\ (1-\%H_2O)$

where:

$M_{SHIPMENT}$ = mass, in lbs., of constituent shipped as hazardous waste;
M_{WASTE} = mass, in lbs., of each constituent of each chemical
$\%H_2O$ = water content, in decimal percent by weight, of hazardous water;

VOC Emission Rate

$ER_{VOC\ CONSTITUENT}$ = $M_{VOC\ CONTAINING\ CONSITUENT\ USED} - M_{VOC\ CONTAINING\ WASTE}$

where:

$ER_{VOC\ CONSTITUENT}$ = VOC emission rate of constituent, in lbs. per month;
$M_{VOC\ CONTAINING\ WASTE}$ = M_{WASTE} determined in 3.4.3 this is a VOC

$ER_{TOTAL\ VOC}$ = $\sum ER_{VOC\ CONSTITUENT}$

where:

$ER_{TOTAL\ VOC}$ = Sum of VOC emission rates of all constituent of all chemicals used, in lbs. per month.

HAP Emission Rate

$ER_{NON-VOC\ HAP\ CONSTITUENT}$ = $M_{NON-VOC\ HAP\ CONTAINING\ CONSTITUENT\ USED}$*(1-%Wastewater),

where:

$ER_{NON-VOC\ HAP\ CONSTITUENT}$ = VOC HAP emission rate of constituent, in lbs. per month;
%Wastewater = decimal percent of constituent found in wastewater;

$ER_{TOTAL\ HAP}$ = $\sum ER_{NON-VOC\ HAP\ CONSTITUENT} + \sum ER_{VOC\ HAP\ CONSTITUENT}$

where:

$ER_{TOTAL\ HAP}$ = Sum of HAP emission rates of all constituent of all chemicals used, in lbs. per month.
$\sum ER_{VOC\ HAP\ CONSTITUENT}$ = Sum of VOC HAP emission rates of all constituent of all chemicals used, in lbs. per month.

The above calculations are dependent upon decimal percent by weight water content and mass, in lbs., of the liquid hazardous waste shipped from the facility. This data is provided to the facility by the TSDF after it has received and analyzed the shipment. The water content and mass data is also based on an aggregate sample collected over a period of approximate 70 to 80 days. The value returned by the TSDF is not the actual water content and mass of each month for which the aggregate was collected. (It should be noted that if the mass of the hazardous waste shipment is not directly measured, the density and volume of the shipment must be measured and used to indirectly measure mass.)

It is for this reason that this Permit requires Zilog to perform the above calculations, using the most recent water content and mass data, for each month for which the aggregated hazardous waste shipment was collected. This Permit also requires that Zilog use the most recent water content and mass data to determine compliance for each month prior to the next liquid hazardous shipment. By performing both sets of calculations, Zilog is assured continuous compliance.

As requested in Zilog's application, the hours of operation (i.e., regularly scheduled operation due to maintenance) of all emergency generators at Buildings 1 and 2 are limited to 200 hours per year. This limitation translates to a short term operating limit of seventeen (17) hours per month. (The value represents 200 divided by 12, and rounded up to the next whole number). The operating limit does not restrict operation during periods of power outages to the facility. The operating limits are meant only to ensure compliance with the short- and long-term emission limits.

3. Facility Classification

Zilog's application materials stated that this facility is major for NO_x and VOCs. Supplemental data submitted by the facility stated that the facility is minor for NO_x, VOC, and HAPs. Data was also provided by the facility demonstrating compliance with applicable TAP rules The facility has been permitted at its current potential to emit for VOC. The facility is not a designated facility, as defined in IDAPA 16.01.01.006.25. The facility is a semiconductor manufacturing facility (SIC 3674).

4. Regulatory Review

This Tier II OP is subject to the following permitting regulations:

IDAPA 16.01.01.006	Definitions;
IDAPA 16.01.01.401	Tier II Operating Permit;
IDAPA 16.01.01.402	Application Procedures;
IDAPA 16.01.01.403	Permit Requirements;
IDAPA 16.01.01.404	Procedure for Issuing Permits;
IDAPA 16.01.01.405	Conditions for Tier II Operating Permit;
IDAPA 16.01.01.406	Obligation to Comply;
IDAPA 16.01.01.470	Permit Application Fees for Tier II Permits; and
IDAPA 16.01.01.625	Visible Emissions Limitations.

The boilers were analyzed to determine if they are subject to 40 CFR 60.40C, Standards of Performance for Small Industrial-Commercial-Institutional Steam-Generating Units. In order for the boilers to be affected, they must have a capacity greater than ten (10) MMBtu/hr. Since the capacity of the boilers is only 8.37 MMBtu/hr, they are not subject to the NSPS requirements.

AIRS

The abbreviated AIRS data entry sheet is located in Appendix B.

FEES

This facility is not a major facility as defined in IDAPA 16.01.01.008.14. Therefore, registration and registration fees, in accordance with IDAPA 16.01.01.526 are not applicable upon issuance of this permit. Permit application fees, in accordance with IDAPA 16.01.01.470, are, however, applicable.

RECOMMENDATIONS

Based on the review of the Tier II OP application materials and of applicable state and federal rules and regulations concerning the permitting of air pollution sources, the Bureau staff recommends Zilog, Incorporated, Nampa, be issued a Tier II OP. Staff also recommends that the facility be notified in writing of the obligation to pay permit application fees for the Tier II OP.

MB\SJR\ABC:jrj...\permit\zilog\zilog-1.TAM

Attachment

cc: S. West, Boise Regional Office
Source File
COF

APPENDIX A

Nampa Building 1

ZILOG INC.
CHEMICAL USAGE - EMISSION CALCULATIONS

September 01 to 30, 1998

Company: Zilog
Mailing Address: 2601 11th Avenue N [illegible]
City/State/Zip: Nampa, Idaho 83687

Date Last Modified: [illegible]

Chemical	Part #	Chemical Components	CAS #	% of Total	% VOC	% HAP	% TAP	Specific Gravity	Bottle Size (Pounds)	# of Bottles Used	Total Pounds Used	Quantity Shipped As Waste	% in Waste Water	Scrubber Control Efficiency	VOC Emissions (lbs/month)	HAP Emissions (lbs/month)	TAP Emissions (lbs/month)	VOC Emissions (lbs/month)	HAP Emissions (lbs/month)	TAP Emissions (lbs/month)	VOC Emissions (ton/yr)	HAP Emissions (ton/yr)	TAP Emissions (ton/yr)	VOC Emissions (lbs/month)	HAP Emissions (lbs/month)	TAP Emissions (lbs/month)	VOC Emissions (ton/yr)	HAP Emissions (ton/yr)	TAP Emissions (ton/yr)
															UNCONTROLLED[1]			CONTROLLED[1]			Potential to Emit[1]			Permitted Levels[1]			Permitted Levels[1]		
Acetone	[illegible]	Acetone	67-64-1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Ammonium Hydroxide	[illegible]	Ammonium Hydroxide	1336-21-6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
BOE - 7:1	[illegible]							[illegible]	[illegible]	[illegible]																			
		Ammonium Fluoride	12125-01-8	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		Hydrofluoric Acid	7664-39-3	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		Water	7732-18-5	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Developer - [illegible]	[illegible]				[illegible]			[illegible]	[illegible]	[illegible]																			
		Tetramethyl Ammonium Hydroxide	75-59-2	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		Water	7732-18-5	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Developer - [illegible]	[illegible]				[illegible]			[illegible]	[illegible]	[illegible]																			
		Tetramethyl Ammonium Hydroxide	75-59-2	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		Water	7732-18-5	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Developer - [illegible]	[illegible]				[illegible]			[illegible]	[illegible]	[illegible]																			
		Tetramethyl Ammonium Hydroxide	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		Water	7732-18-5	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Developer - POS21AD	[illegible]				[illegible]			[illegible]	[illegible]	[illegible]																			
		Tetramethyl Ammonium Hydroxide	75-59-2	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		Water	7732-18-5	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EBR - [illegible]	[illegible]							[illegible]	[illegible]	[illegible]																			
		Ethyl Lactate	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		Methyl ethyl ketone	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Hydrochloric Acid	[illegible]	Hydrochloric Acid	7647-01-0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Hydrofluoric Acid	[illegible]	Hydrofluoric Acid	7664-39-3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Hydrofluoric Acid - 10:1	[illegible]	Hydrofluoric Acid	7664-39-3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Hydrofluoric Acid - [illegible]	[illegible]	Hydrofluoric Acid	7664-39-3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Hydrogen Peroxide	[illegible]	Hydrogen Peroxide	7722-84-1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
HMDS	[illegible]	Hexamethyldisilazane	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
HMDS - [illegible]	[illegible]	Hexamethyldisilazane	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Isopropanol	[illegible]	Isopropanol	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Nitric Acid	[illegible]	Nitric Acid	7697-37-2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Phosphoric Acid	[illegible]	Phosphoric Acid	7664-38-2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
PM 1400	[illegible]							[illegible]	[illegible]	[illegible]																			
		1-Methoxy-2-propanol	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		Water		[illegible]	[illegible]	[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	Phosphorus oxychloride	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Potassium Hydroxide	[illegible]	Potassium Hydroxide	1310-58-3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Nampa Building 1

ZiLOG INC.
CHEMICAL USAGE - EMISSION CALCULATIONS

September 01 to 30, 1996

Company: Zilog
Mailing Address: [illegible]
City/State/Zip: Nampa, Idaho [illegible]

Date Last Modified: [illegible]

Chemical	Part #	Chemical Components	CAS #	% of Total	% VOC	% HAP	% TAP	Specific Gravity	Bottle Size (Pounds)	# of Bottles Used	Total Pounds Used	Quantity Shipped As Waste	% in Waste Water	Scrubber Control Efficiency	UNCONTROLLED VOC Emissions (lbs/month)	UNCONTROLLED HAP Emissions (lbs/month)	UNCONTROLLED TAP Emissions (lbs/month)	CONTROLLED VOC Emissions (lbs/month)	CONTROLLED HAP Emissions (lbs/month)	CONTROLLED TAP Emissions (lbs/month)	Potential to Emit VOC Emissions (tons/yr)	Potential to Emit HAP Emissions (tons/yr)	Potential to Emit TAP Emissions (tons/yr)	Permitted Levels VOC Emissions (lbs/month)	Permitted Levels HAP Emissions (lbs/month)	Permitted Levels TAP Emissions (lbs/month)	Permitted Levels VOC Emissions (tons/yr)	Permitted Levels HAP Emissions (tons/yr)	Permitted Levels TAP Emissions (tons/yr)
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Resist - [illegible]	[illegible]				[illegible]			[illegible]	[illegible]	[illegible]																			
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Resist - [illegible]	[illegible]				[illegible]		[illegible]	[illegible]	[illegible]	[illegible]																			
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		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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Resist - [illegible]	[illegible]				[illegible]			[illegible]	[illegible]	[illegible]																			
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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		[illegible]	proprietary	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		[illegible]	proprietary	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		[illegible]	proprietary	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		[illegible]	proprietary	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		[illegible]	proprietary	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		[illegible]	proprietary	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]				[illegible]			[illegible]	[illegible]	[illegible]																			
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		[illegible]	71-36-3	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		Water	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Sulfuric Acid	[illegible]	Sulfuric Acid	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]				[illegible]			[illegible]	[illegible]	[illegible]																			
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		Water	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
TCA	[illegible]	1,1,1-Trichloroethane	71-55-6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.47	1	1.47	[illegible]	[illegible]	[illegible]	1.47	1.47	[illegible]	1.47	1.47	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Ammonia - [illegible]	[illegible]	Ammonia	7664-41-7	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Ammonia - [illegible]	[illegible]	Ammonia	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

ZiLOG INC.
CHEMICAL USAGE - EMISSION CALCULATIONS

Nampa Building 1

September 01 to 30, 1996

Company: Zilog
Mailing Address: 2801 11th Avenue N. Extension
City/State/Zip: Nampa, Idaho 83687

Date Last Modified: 12/13/96

Chemical	Part #	Chemical Components	CAS #	% of Total	% VOC	% HAP	% TAP	Specific Gravity	Bottle Size (Pounds)	# of Bottles Used	Total Pounds Used	Quantity Emitted As Waste	% in Waste Water	Scrubber Control Efficiency	UNCONTROLLED VOC Emissions (lbs/month)	UNCONTROLLED HAP Emissions (lbs/month)	UNCONTROLLED TAP Emissions (lbs/month)	CONTROLLED VOC Emissions (lbs/month)	CONTROLLED HAP Emissions (lbs/month)	CONTROLLED TAP Emissions (lbs/month)	Potential to Emit VOC Emissions (tons/yr)	Potential to Emit HAP Emissions (tons/yr)	Potential to Emit TAP Emissions (tons/yr)	Potential Levels VOC Emissions (lbs/month)	Potential Levels HAP Emissions (lbs/month)	Potential Levels TAP Emissions (lbs/month)	Potential Levels VOC Emissions (tons/yr)	Potential Levels HAP Emissions (tons/yr)	Potential Levels TAP Emissions (tons/yr)
Argon - 5 lb		Argon	7440-37-1	100	0	0	0	1.38	1.34	1	1.34	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Argon - 300		Argon	7440-37-1	100	0	0	0	1.38	34.64	1	34.64	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Argon - 6 lb		Argon	7440-37-1	100	0	0	0	1.38	20.64	1	20.64	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Argon - L		Argon	7440-37-1	100	0	0	0	1.38	0.15	1	0.15	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Arsine - 12									1.08	8																			
		Arsine	7784-42-1	10	0	100	100				0.32	0	0	0	0.00	0.32	0.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Hydrogen	1333-74-0	90	0	0	0				7.68	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Arsine - L									0.20	8																			
		Arsine	7784-42-1	10	0	100	100				0.10	0	0	0	0.00	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Hydrogen	1333-74-0	90	0	0	0				1.97	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Boron Trichloride		Boron Trichloride	10294-34-5	100	0	0	0	1.65	30.00	1	30.00	0	0	95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Boron Trifluoride		Boron Trifluoride	7637-07-2	100	0	0	100	2.54	8.10	1	8.10	2	0	0	0.00	0.00	0.10	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00
Boron Trifluoride - Gas		Boron Trifluoride	7637-07-2	100	0	0	100	2.54	1.00	1	1.00	0	0	0	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	0.01	0.00	1.14	0.00	0.00	1.14	0.00	0.01
Chlorine		Chlorine	7782-50-5	100	0	100	100	2.90	150.00	1	150.00	0	0	0	0.00	150.00	150.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	172.50	172.50	0.00	0.00	1.97	1.97
Diborane									13.00	1																			
		Diborane	19287-45-7	5	0	5	100				0.65	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Helium	7727-37-9	95	0	0	0				12.35	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dichlorosilane		Dichlorosilane	4109-96-0	100	1	0	0	2.20	30.00	1	30.00	2	0	45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Freon 116		Hexafluoroethane	76-16-4	100	0	0	0	5.64	50.00	5	250.00	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Freon 14		Carbon Tetrafluoride	75-73-0	100	0	0	0	3.04	75.00	1	75.00	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Freon 23		Trifluoromethane	75-46-7	100	0	0	0	2.73	70.00	1	70.00	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Helium		Helium	7440-59-7	100	0	0	0	0.14	3.00	1	11.55	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydrogen Bromide		Hydrogen Bromide	10035-10-6	100	0	0	100	3.49	45.00	1	45.00	0	0	75	0.00	0.00	45.00	0.00	0.00	45.00	0.00	0.00	0.27	0.00	45.45	0.00	0.00	45.45	0.00	0.27
Hydrogen Chloride		Hydrogen Chloride	7647-01-0	100	0	0	0	1.64	50.00	30	1,500.00	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydrogen		Hydrogen	7727-37-9	100	0	0	0	0.14	12.00	7	154.00	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydrogen Telluride		Hydrogen Telluride	7783-07-5	100	0	0	100	5.52	44.00	1		0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Oxygen/Freon 14									33.10	1																			
		Oxygen	7782-44-7	5	0	0	0				1.65	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Carbon Tetrafluoride	75-73-0	95	0	0	0				31.45	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Oxygen/Silane									14.40	1																			
		Oxygen	7782-44-7	20	0	0	0				2.88	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Silane Hydrogen	7803-62-5	80	0	0	0				11.52	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Phosphine - 15%									17.73	8																			
		Phosphine	7803-51-2	15	0	100	100				1.33	0	0	0	0.00	1.33	1.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Argon	7440-37-1	85	0	0	0				10.65	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Phosphine - 15%									9.87	5																			
		Phosphine	7803-51-2	15	0	100	100				7.39	0	0	0	0.00	7.39	7.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Hydrogen	1333-74-0	85	0	0	0				41.91	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Nampa Building 1

ZiLOG INC.
CHEMICAL USAGE - EMISSION CALCULATIONS

September 01 to 30, 1998

Company: Zilog
Mailing Address: [illegible]
City/State/Zip: Nampa, Idaho [illegible]

Date Last Modified: 12/13/98

Chemical	Part #	Chemical Components	CAS #	% of Total	% VOC	% HAP	% TAP	Specific Gravity	Bottle Size (Pounds)	# of Bottles Used	Total Pounds Used	Quantity Shipped as Waste	% to Waste Water	Scrubber Control Efficiency	VOC Emissions (lbs/month)	HAP Emissions (lbs/month)	TAP Emissions (lbs/month)	VOC Emissions (lbs/month)	HAP Emissions (lbs/month)	TAP Emissions (lbs/month)	VOC Emissions (tons/yr)	HAP Emissions (tons/yr)	TAP Emissions (tons/yr)	VOC Emissions (lbs/month)	HAP Emissions (lbs/month)	TAP Emissions (lbs/month)	VOC Emissions (tons/yr)	HAP Emissions (tons/yr)	TAP Emissions (tons/yr)
															UNCONTROLLED[2]			CONTROLLED[2]			Potential to Emit[1]			Permitted Levels[1]			Permitted Levels[1]		
PH3/N2 - 1%	[illegible]							N/A	21.66	1																			
		Phosphine	7803-51-2	1	0	100	100				3.16	[illegible]	0	0	0.00	3.16	3.16	0.00	3.16	3.16	0.00	0.02	0.02	0.00	3.16	3.16	0.00	0.02	0.02
		Nitrogen	7727-37-9	99	0	0	0				[illegible]	[illegible]	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PH3/N2 - 50 %	[illegible]							N/A	3.36	1																			
		Phosphine	7803-51-2	50	0	100	100				2.63	[illegible]	0	0	0.00	2.63	2.63	0.00	2.63	2.63	0.00	[illegible]	[illegible]	0.00	2.63	2.63	0.00	[illegible]	[illegible]
		Nitrogen	7727-37-9	50	0	0	0				2.63	[illegible]	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Phosphine - 12	[illegible]							N/A	6.40	1																			
		Phosphine	7803-51-2	15	0	100	100				[illegible]	[illegible]	0	0	0.00	[illegible]	[illegible]	0.00	[illegible]	[illegible]	0.00	[illegible]	[illegible]	0.00	[illegible]	[illegible]	0.00	[illegible]	[illegible]
		Hydrogen	1333-74-0	[illegible]	0	0	0				[illegible]	[illegible]	0	0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Silane - CCD	[illegible]	Silane	[illegible]	100	[illegible]	[illegible]	[illegible]	N/A	11.[illegible]	1	11.[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Silane - [illegible]	[illegible]	Silane	[illegible]	100	[illegible]	[illegible]	[illegible]	N/A	11.[illegible]	[illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Sulfur Hexafluoride	[illegible]	Sulfur Hexafluoride	2551-62-4	100	[illegible]	[illegible]	[illegible]	N/A	100.00	1	100.00	[illegible]	0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

TOTALS	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	VOCs	HAPs	TAPs	VOCs	HAPs	TAPs	VOCs	HAPs	TAPs	VOCs	HAPs	TAPs	VOCs	HAPs	TAPs

Notes:
1 [illegible]
2 [illegible]
3 [illegible]

[illegible]

[illegible]

[illegible]

[illegible]

ZiLOG INC.
HAZARDOUS WASTE - EMMISSION CALCULATIONS

Nampa Building 1 September 01 to 30, 1996

CHEMICAL	CAS #	SOURCE (S)	POUNDS USED	PERCENT OF TOTAL	TOTAL IN WASTE (POUNDS)
1-Methyl-2-pyrrolidone	872-50-4	Pix 1400	236.04	1.54	171.20
1-Methyl-2-pyrrolidone	872-50-4	PRS-3000	1,980.13	12.94	1,436.23
Acetone	67-64-1	Acetone	3,606.12	23.57	2,615.60
Acetone	67-64-1	SOG-211	22.41	0.15	16.25
Bisphenol Compound	Proprietary	Resist - IX570EDA9	0.56	0.00	0.40
Bisphenol Compound	Proprietary	Resist - IX725D3G	1.52	0.01	1.10
Ethanol	64-17-5	SOG-211	20.16	0.13	14.63
Ethyl 3-ethoxyproprionate	763-69-9	Resist - 6512	395.73	2.59	287.03
Ethyl 3-ethoxyproprionate	763-69-9	Resist - 6517GH	58.50	0.38	42.43
Ethyl 3-ethoxyproprionate	763-69-9	Resist - HIPR 6517HC	84.72	0.55	61.45
Ethyl 3-ethoxyproprionate	763-69-9	Resist - IX725D3G	9.55	0.06	6.92
Ethyl Lactate	97-64-3	EBR-RER 500	1,429.42	9.34	1,036.79
Ethyl Lactate	97-64-3	Resist - 506	169.57	1.11	123.00
Ethyl Lactate	97-64-3	Resist - 6512	944.84	6.18	685.31
Ethyl Lactate	97-64-3	Resist - 6517GH	130.92	0.86	94.96
Ethyl Lactate	97-64-3	Resist - HIPR 6517HC	189.61	1.24	137.53
Ethyl Lactate	97-64-3	Resist - IX570EDA9	5.81	0.04	4.22
Ethyl Lactate	97-64-3	Resist - IX725D3G	22.56	0.15	16.37
Hydroxybenzophenone	52479-85-3	Resist - 6517GH	2.70	0.02	1.96
Hydroxybenzophenone	52479-85-3	Resist - HIPR 6517HC	3.91	0.03	2.84
Isopropanol	67-63-0	IPA	2,089.42	13.66	1,515.50
Isopropanol	67-63-0	SOG 211	44.81	0.29	32.50
Methyl Ethyl Ketone	78-93-3	EBR-RER 500	1,056.53	6.91	766.33
Methylsiloxane polymer	67762-97-4	SOG-211	7.84	0.05	5.69
Monoisopropanolamine	78-96-6	PRS-3000	396.03	2.59	287.25
N-butyl Alcohol	71-36-3	SOG-211	7.84	0.05	5.69
Napthoquinone diazide ester derivatives	121870-66-4	Resist - 6512	127.14	0.83	92.22
Napthoquinone diazide ester derivatives	121870-66-4	Resist - 6517GH	19.58	0.13	14.20
Napthoquinone diazide ester derivatives	121870-66-4	Resist - HIPR 6517HC	28.36	0.19	20.57
Napthoquinone diazide esters	68510-93-0	Resist - 506	20.23	0.13	14.67
Napthoquinone diazide esters	68510-93-0	Resist - IX570EDA9	0.57	0.00	0.42
Napthoquinone diazide esters	68510-93-0	Resist - IX725D3G	3.25	0.02	2.36
Novolak Resin	27029-76-1	Resist - 506	59.94	0.39	43.47
Novolak Resin	27029-76-1	Resist - 6512	366.93	2.40	266.14
Novolak Resin	27029-76-1	Resist - 6517GH	66.85	0.44	48.49
Novolak Resin	27029-76-1	Resist - HIPR 6517HC	96.82	0.63	70.23
Novolak Resin	27029-76-1	Resist - IX570EDA9	1.74	0.01	1.26
Novolak Resin	27029-76-1	Resist - IX725D3G	6.51	0.04	4.72
Sulfolane	126-33-0	PRS-3000	1,584.10	10.35	1,148.99
TOTAL			15,299.30	100.00	12,482.48
Water Content of Waste (in percent)	11.1				

ZiLOG INC.
CHEMICAL USAGE - EMISSION CALCULATIONS

September 01 to 30, 1996

Nampa Building 2

Company: ZiLOG
Mailing Address: 2601 11th Avenue N. Extension
City/State/Zip: Nampa, Idaho 83687

Created by: Zilog (modified by ABC, DEQ-Air[illegible])
Date Last Modified: 12/13/96

Chemical	Part #	Chemical Components	CAS #	% of Total	% VOC	% HAP	% TAP	Specific Gravity	Bottle Size (Pounds)	# of Bottles Used	Total Pounds Used	Quantity Shipped As Waste	% to Waste Water	Scrubber Control Efficiency
Acetone	[illegible]	Acetone	67-64-1	100	0	0	100	0.790	6.59	246	1,634.95	1,130.74	0	0
Ammonium Hydroxide	[illegible]	Ammonium Hydroxide	1336-21-6	28-30	0	0	0	0.900	413.08	16	2,230.63	0	90	70
Developer - 4[illegible]	[illegible]				2.38			1.000	8.61	144				
		Tetramethyl Ammonium Hydroxide	75-59-2	2.38	100	0	0				30.29	0	90	70
		Water	7732-18-5	97.62	0	0	0				1,238.77	0	90	0
Developer - PD523AD	[illegible]				2.38			1.000	438.98	16				
		Tetramethyl Ammonium Hydroxide	75-59-2	2.38	100	0	0				174.78	0	90	70
		Water	7732-18-5	97.62	0	0	0				7,188.88	0	90	0
EMT 607	[illegible]	Ethyl Lactate	97-64-3	100	100	0	0	1.030	128.65	20	2,598.66	1,797.30	0	0
Hydrochloric Acid	[illegible]	Hydrochloric Acid	7647-01-0	37-38	0	100	100	1.190	346.26	3	921.88	0	90	70
Hydrofluoric Acid	[illegible]	Hydrofluoric Acid	7664-39-3	48.8-49.2	0	100	100	1.153	16.92	22	98.40	0	90	70
Hydrofluoric Acid	[illegible]	Hydrofluoric Acid	7664-39-3	48.8-49.2	0	100	100	1.153	329.29	3	791.10	0	90	70
Hydrogen Peroxide	[illegible]	Hydrogen Peroxide	7722-84-1	30-32	0	0	100	1.112	114.36	30	3,388.41	0	90	70
HMDS - Coating	[illegible]	Hexamethyldisilazane	999-97-3	100	100	0	0	0.770	2.88	44	38.34	3	0	3
Isopropanol	[illegible]	Isopropanol	67-63-0	100	100	0	100	0.786	6.61	12	79.11	54.02	0	0
Isopropanol	[illegible]	Isopropanol	67-63-0	100	100	0	100	0.786	386.69	21	7,958.00	5,168.86	0	0
Nitric Acid	[illegible]	Nitric Acid	7697-37-2	69-70	0	3	100	1.420	7.90	12	107.88	0	90	70
Phosphoric Acid	[illegible]	Phosphoric Acid	7664-38-2	85-87	0	0	100	1.690	775.67	6	4,848.98	0	90	70
Pi 1400	[illegible]							1.000	8.76	1				
		1-Methyl-2-pyrrolidone	872-50-4	85	100	0	0				44.66	31.73	0	0
		Water	7732-18-5	15	0	0	0				7.88	5.90	0	0
PRS 3000	[illegible]				100			1.000	133.94	13				
		1-Methyl-2-pyrrolidinone	872-50-4	40-60	100	0	0				670.61	402.12	0	0
		Sulfolane	126-33-0	30-50	100	0	0				666.48	451.99	0	0
		Monoisopropanolamine	78-96-6	5-15	100	0	0				174.12	120.42	0	0
EKC 265	[illegible]							1.120	3.35	216				
		2-(2-Aminoethoxy) Ethanol	929-06-6	60-70	100	0	0				1,276.76	0.00	80	0
		Hydroxylamine	7803-49-8	30-40	0	0	0				484.32	0.00	90	70
		Catechol	120-80-9	2-5	100	100	100				163.52	0.00	80	0
Resist - X370EDA6	[illegible]				73.4			1.040	8.88	1				
		Ethyl Lactate	97-64-3	50-75	100	0	0				5.81	4.02	0	0
		Novolak resin	proprietary	15-25	0	0	0				1.74	1.38	0	0
		Sensitizer compound	proprietary	1-10	100	0	0				0.58	0.38	0	0
		[illegible] ester	proprietary	1-10	0	0	0				0.57	0.40	0	0
Resist - X?25D3Q	[illegible]				77.5			1.040	8.88	1				
		Ethyl Lactate	97-64-3	45-55	100	0	0				4.51	3.12	0	0

Chemical	Chemical Components	UNCONTROLLED[1] VOC Emissions (lbs/month)	UNCONTROLLED[1] HAP Emissions (lbs/month)	UNCONTROLLED[1] TAP Emissions (lbs/month)	CONTROLLED[2] VOC Emissions (lbs/month)	CONTROLLED[2] HAP Emissions (lbs/month)	CONTROLLED[2] TAP Emissions (lbs/month)	Potential to Emit[3] VOC Emissions (tons/yr)	Potential to Emit[3] HAP Emissions (tons/yr)	Potential to Emit[3] TAP Emissions (tons/yr)	Permitted Levels[4] VOC Emissions (lbs/month)	Permitted Levels[4] HAP Emissions (lbs/month)	Permitted Levels[4] TAP Emissions (lbs/month)	Permitted Levels[5] VOC Emissions (tons/yr)	Permitted Levels[5] HAP Emissions (tons/yr)	Permitted Levels[5] TAP Emissions (tons/yr)
Acetone	Acetone	0.00	0.00	504.21	0.00	0.00	504.21	0.00	0.00	4.89	0.00	0.00	778.71	0.00	0.00	4.85
Ammonium Hydroxide	Ammonium Hydroxide	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Developer - 4[illegible]	Tetramethyl Ammonium Hydroxide	6.64	0.00	0.00	6.64	0.00	0.00	0.09	0.00	0.00	9.78	0.00	0.00	0.09	0.00	0.00
	Water	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Developer - PD523AD	Tetramethyl Ammonium Hydroxide	34.96	0.00	0.00	34.96	0.00	0.00	0.32	0.00	0.00	53.75	0.00	0.00	0.32	0.00	0.00
	Water	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EMT 607	Ethyl Lactate	801.40	0.00	0.00	801.40	0.00	0.00	7.40	0.00	0.00	1,332.03	0.00	0.00	7.40	0.00	0.00
Hydrochloric Acid	Hydrochloric Acid	0.00	134.32	134.32	0.00	134.32	134.22	0.00	1.16	1.16	0.00	191.28	191.28	0.00	1.16	1.16
Hydrofluoric Acid	Hydrofluoric Acid	0.00	19.68	19.68	0.00	19.68	19.68	0.00	0.18	0.18	0.00	30.28	30.28	0.00	0.18	0.18
Hydrofluoric Acid	Hydrofluoric Acid	0.00	158.22	158.22	0.00	158.22	158.22	0.00	1.44	1.44	0.00	240.34	240.34	0.00	1.44	1.44
Hydrogen Peroxide	Hydrogen Peroxide	0.00	0.00	663.29	0.00	0.00	663.29	0.00	0.00	6.03	0.00	0.00	1,020.00	0.00	0.00	[illegible]
HMDS - Coating	Hexamethyldisilazane	38.34	3.00	3.00	38.34	0.00	0.00	0.33	0.00	0.00	58.37	0.00	0.00	0.33	0.00	0.00
Isopropanol	Isopropanol	24.09	0.00	24.09	24.09	0.00	24.09	0.22	0.00	0.22	37.06	0.00	37.06	0.22	0.00	0.22
Isopropanol	Isopropanol	2,789.14	0.00	2,789.14	2,789.14	0.00	2,789.14	25.40	0.00	25.40	4,290.37	0.00	4,290.37	25.40	0.00	25.40
Nitric Acid	Nitric Acid	0.00	0.00	21.58	0.00	0.00	21.38	0.00	0.00	0.20	0.00	0.00	33.17	0.00	0.00	0.20
Phosphoric Acid	Phosphoric Acid	0.00	0.00	809.80	0.00	0.00	809.80	0.00	0.00	7.40	0.00	0.00	1,245.80	0.00	0.00	7.40
Pi 1400	1-Methyl-2-pyrrolidone	12.95	0.00	0.00	12.95	0.00	0.00	0.12	0.00	0.00	19.92	0.00	0.00	0.12	0.00	0.00
	Water	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PRS 3000	1-Methyl-2-pyrrolidinone	268.49	0.00	0.00	268.49	0.00	0.00	2.44	0.00	0.00	413.07	0.00	0.00	2.44	0.00	0.00
	Sulfolane	214.79	0.00	0.00	214.79	0.00	0.00	1.96	0.00	0.00	330.45	0.00	0.00	1.96	0.00	0.00
	Monoisopropanolamine	53.70	0.00	0.00	53.70	0.00	0.00	0.49	0.00	0.00	82.61	0.00	0.00	0.49	0.00	0.00
EKC 265	2-(2-Aminoethoxy) Ethanol	274.18	0.00	0.00	274.18	0.00	0.00	2.53	0.00	0.00	421.79	0.00	0.00	2.53	0.00	0.00
	Hydroxylamine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Catechol	32.70	32.70	32.70	32.70	32.70	32.70	0.30	0.30	0.30	50.32	50.32	50.32	0.30	0.30	0.30
Resist - X370EDA6	Ethyl Lactate	1.79	0.00	0.00	1.79	0.00	0.00	0.02	0.00	0.00	2.75	0.00	0.00	0.02	0.00	0.00
	Novolak resin	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Sensitizer compound	0.17	0.00	0.00	0.17	0.00	0.00	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.00	0.00
	[illegible] ester	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Resist - X?25D3Q	Ethyl Lactate	1.39	0.00	0.00	1.39	0.00	0.00	0.01	0.00	0.00	2.14	0.00	0.00	0.01	0.00	0.00

ZiLOG INC.
CHEMICAL USAGE - EMISSION CALCULATIONS

September 01 to 30, 1998

Nampa Building 2

Company: Zilog
Mailing Address: 2601 11th Avenue N. Extension
City/State/Zip: Nampa, Idaho 83687

Created by: Zilog (modified by ABC, DEQ-A&HW)
Date Last Modified: 12/13/98

Chemical	Part #	Chemical Components	CAS #	% of Total	% VOC	% HAP	% TAP	Specific Gravity	Bottle Sz (Pounds)	# of Bottles Used	Total Pounds Used	Quantity Shipped As Waste	% to Waste Water	Scrubber Control Efficiency
		Novolak resin	proprietary	10-20	0	0	0				1.30	0.90	0	0
		Sulfonated compound	proprietary	0-5	100	0	0				0.30	0.21	0	0
		Naphthoquinone diazide ester	proprietary	5-10	0	0	0				0.62	0.43	0	0
		Ethyl 3-ethoxypropionate	763-69-9	15-25	100	0	0				1.91	1.32	0	0
SOG - 211	[illegible]				86			0.900	6.88	15				
		Ethanol	64-17-5	15-23	100	0	100				2.21	2.18	0	0
		Isopropanol	67-63-0	35-45	100	0	100				7.14	3.07	0	0
		Acetone	67-64-1	15-25	0	0	100				3.37	1.53	0	0
		N-butyl alcohol	71-36-3	1-5	100	0	100				1.25	0.86	0	0
		Methylsiloxane polymer	67762-97-4	1-5	0	0	0				1.25	0.88	0	0
		Water	7732-18-5	1	0	0	0				1.43	1.01	0	0
Sulfuric Acid	[illegible]	Sulfuric Acid	7664-93-9	96-97	0	0	100	1.840	844.31	23	19,841.00	0	90	70
Super Q Etch	[illegible]				0			1.190	145.28	5				
		Ammonium fluoride	12125-01-8	28-40	0	0	0				232.32	0	99	75
		Phosphoric acid	7664-38-2	1-5	0	0	100				21.79	0	99	75
		Water	7732-18-5	64-71	0	0	0				471.98	0	99	0
Trans LC	[illegible]	Trans-1,2-dichloroethylene	156-60-5	100	100	0	0	1.330	1.47	3	4.40	0	0	0
TEOS		Tetraethyl Orthosilicate	78-10-4	100	100	0	0	0.930	7.80	1	7.80	0	0	0
Ammonia - Nitride	[illegible]	Ammonia	7664-41-7	100	0	0	100	N/A	30.00	3	90.00	3	3	75
Argon - Grade 5.0	[illegible]	Argon	7440-37-1	100	0	0	0	N/A	8.10	1	8.10	0	0	0
Argon - Grade 6.0	[illegible]	Argon	7440-37-1	100	0	0	0	N/A	1.20	1	1.20	0	0	0
Arsine - Dec	[illegible]							N/A	0.30	2				
		Arsine	7784-42-1	15	0	100	100				0.30	0	0	0
		Hydrogen	1333-74-0	85	0	0	0				0.30	0	0	0
Boron Trichloride	[illegible]	Boron Trichloride	10294-34-5	100	0	0	0	N/A	90.00	1	90.00	0	0	90
Boron Trifluoride	[illegible]	Boron Trifluoride	7637-07-2	100	0	0	100	N/A	1.27	1	1.27	0	0	0
Chlorine	[illegible]	Chlorine	7782-50-5	100	0	100	100	N/A	100.00	1	100.00	0	0	0
Diborane	[illegible]							N/A	4.56	3				
		Diborane	19287-45-7	1	0	0	100				6.00	3	0	3
		Nitrogen	7727-37-9	99	0	0	0				13.68	0	0	0
Dichlorosilane	[illegible]	Dichlorosilane	4109-96-0	100	0	0	0	N/A	90.00	1	90.00	0	0	90
Freon 116	[illegible]	Hexafluoroethane	76-16-4	100	0	0	0	N/A	68.00	4	260.00	0	0	0
Freon 14	[illegible]	Carbon Tetrafluoride	75-73-0	100	0	0	0	N/A	75.00	1	75.00	0	0	0
Freon 23	[illegible]	Trifluoromethane	75-46-7	100	0	0	0	N/A	75.00	1	75.00	0	0	0
Helium	[illegible]	Helium	7440-59-7	100	0	0	0	N/A	2.16	6	13.00	0	0	0
5% Hydrogen Bromide	[illegible]	Hydrogen Bromide	10035-10-6	100	0	0	100	N/A	10.00	2	20.00	0	3	75

Chemical / Component	VOC Emissions (lb/month) UNCONTROLLED[2]	HAP Emissions (lb/month)	TAP Emissions (lb/month)	VOC Emissions (lb/month) CONTROLLED[3]	HAP Emissions (lb/month)	TAP Emissions (lb/month)	VOC Emissions (ton/yr) Potential to Emit[4]	HAP Emissions (ton/yr)	TAP Emissions (ton/yr)	VOC Emissions (lb/month) Permitted Levels[5]	HAP Emissions (lb/month)	TAP Emissions (lb/month)	VOC Emissions (ton/yr) Permitted Levels[7]	HAP Emissions (ton/yr)	TAP Emissions (ton/yr)
Novolak resin	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sulfonated compound	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00
Naphthoquinone diazide ester	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ethyl 3-ethoxypropionate	0.32	0.00	0.00	0.32	0.00	0.00	0.31	0.00	0.00	0.81	0.00	0.00	0.81	0.00	0.00
SOG - 211															
Ethanol	0.03	0.00	3.03	0.03	0.00	3.03	0.01	0.00	0.01	1.43	0.00	1.43	0.01	0.00	3.01
Isopropanol	2.07	0.00	2.07	2.07	0.00	2.07	0.02	0.00	0.02	3.18	0.00	3.18	0.02	0.00	3.02
Acetone	0.00	0.00	1.03	0.00	0.00	1.03	0.00	0.00	0.01	0.00	0.00	1.30	0.00	0.00	0.01
N-butyl alcohol	0.36	0.00	0.36	0.36	0.00	0.36	0.00	0.00	0.00	0.36	0.00	0.36	0.00	0.00	0.00
Methylsiloxane polymer	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sulfuric Acid	0.00	0.00	1,788.30	0.00	0.00	1,788.30	0.00	0.00	34.78	0.00	0.00	1,797.24	0.00	0.00	34.78
Super Q Etch															
Ammonium fluoride	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Phosphoric acid	0.00	0.00	4.38	0.00	0.00	4.38	0.00	0.00	0.04	0.00	0.00	4.70	0.00	0.00	3.04
Water	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Trans LC	4.40	0.00	0.00	4.40	0.00	0.00	0.04	0.00	0.00	6.70	0.00	0.00	0.04	0.00	0.00
TEOS	7.80	0.00	0.00	7.80	0.00	0.00	0.071	0.00	0.00	13.00	0.00	0.00	0.071	0.00	0.00
Ammonia - Nitride	0.00	0.00	90.00	0.00	0.00	90.00	0.00	0.00	0.81	0.00	0.00	136.40	0.00	0.00	3.63
Argon - Grade 5.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Argon - Grade 6.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Arsine - Dec															
Arsine	0.00	0.30	0.30	0.00	0.30	0.30	0.00	0.00	0.00	0.00	0.46	0.46	0.00	0.00	0.00
Hydrogen	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Boron Trichloride	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Boron Trifluoride	0.00	0.00	1.27	0.00	0.00	1.27	0.00	0.00	0.01	0.00	0.00	1.96	0.00	0.00	0.01
Chlorine	0.00	100.00	100.00	0.00	100.00	100.00	0.00	0.92	0.92	0.00	153.86	153.86	0.00	0.92	0.92
Diborane															
Diborane	0.00	0.00	3.00	0.00	0.00	3.00	0.00	0.00	0.01	0.00	0.00	1.00	0.00	0.00	3.01
Nitrogen	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dichlorosilane	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Freon 116	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Freon 14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Freon 23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Helium	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5% Hydrogen Bromide	0.00	0.00	20.00	0.00	0.00	20.00	0.00	0.00	0.18	0.00	0.00	30.77	0.00	0.00	0.18

ZILOG INC.
CHEMICAL USAGE - EMISSION CALCULATIONS

September 01 to 30, 1998

Nampa Building 2

Company: Zilog
Mailing Address: 2801 11th Avenue N Extension
City/State/Zip: Nampa, Idaho 83687

Created by: Zilog (modified by ABC, DEQ-4/23/99)
Date Last Modified: 12/13/98

Chemical	Part #	Chemical Components	CAS #	% of Total	% VOC	% HAP	% TAP	Specific Gravity	Boiling Pt. (Fahrenheit)	# of Boiling Point	TANK Pounds Used	Quantity Shipped As Waste	% as Waste Water	Scrubber Control Efficiency	VOC Emissions (lbs/month)	HAP Emissions (lbs/month)	TAP Emissions (lbs/month)	VOC Emissions (lbs/month)	HAP Emissions (lbs/month)	TAP Emissions (lbs/month)	VOC Emissions (tons/yr)	HAP Emissions (tons/yr)	TAP Emissions (tons/yr)	VOC Emissions (lbs/month)	HAP Emissions (lbs/month)	TAP Emissions (lbs/month)	VOC Emissions (tons/yr)	HAP Emissions (tons/yr)	TAP Emissions (tons/yr)
															UNCONTROLLED[2]			CONTROLLED[2]			Proposed to Emit[2]			Permitted Levels[1]			Permitted Levels[1]		
Nitrogen	98N0201	Nitrogen	7727-37-9	100	0	0	0	N/A	16.01	1	16.01	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nitrous Oxide	98N0211	Nitrogen Oxide	10024-97-2	100	0	0	0	N/A	65.00	13	780.00	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nitrogen Trifluoride	98N0307	Nitrogen Trifluoride	7783-54-2	100	0	0	100	N/A	44.00		44.00	0	0	0	0.00	0.00	44.00	0.00	0.00	44.00	0.00	0.00	0.41	0.00	0.00	97.00	0.00	0.00	0.41
PH3/H2 - 3%	98H0309							N/A	19.31	1																			
		Phosphine	7803-51-2	3	0	100	100				0.58	0	0	0	0.00	0.58	0.58	0.00	0.58	0.58	0.00	0.01	0.01	0.00	1.48	1.48	0.00	0.01	0.01
		Hydrogen	7727-37-9	97	0	0	0				18.73	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PH3/H2 - 50 %	98H0299							N/A	8.55	1																			
		Phosphine	7803-51-2	50	0	100	100				0.17	0	0	0	0.00	0.17	0.17	0.00	0.17	0.17	0.00	0.00	0.00	0.00	0.43	0.43	0.00	0.00	0.00
		Hydrogen	7727-37-9	50	0	0	0				0.17	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Silane - 100	98S0106	Silane	7803-62-5	100	0	0	0	N/A	11.66	1	11.66	0	0	70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sulfur Hexafluoride	98S0308	Sulfur Hexafluoride	2551-62-4	100	0	0	0	N/A	100.00	1	100.00	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTALS											4,534.36	434.36	9,140.36	4,534.36	434.36	9,140.36	41.89	4.01	84.37	6,962.09	666.23	14,062.09	41.89	4.01	84.37				
											VOC	HAP	TAP	VOC	HAP	TAP	VOC	HAP	TAP	VOC	HAP	TAP	VOC	HAP	TAP				

Note

1 These Values are based on detailed emissions.
2 Values represent actual emission estimates for the month of Sept. 1998 divided by 0.85 to achieve 100 of theoge maximum usage.
3 Values represent waste usage for the month of September, 1998

41.89

ZiLOG INC.
HAZARDOUS WASTE - EMISSION CALCULATIONS

Nampa Building 2 — September 01 to 30, 1996

CHEMICAL	CAS #	SOURCE (S)	POUNDS USED	PERCENT OF TOTAL	TOTAL IN WASTE (POUNDS)
1-Methyl-2-pyrrolidone	872-50-4	PRS-3000	870.61	5.80	602.12
Acetone	67-64-1	Acetone	1,634.95	10.88	1,130.74
Bisphenol Compound	Proprietary	Resist - IX570EDA9	0.56	0.00	0.38
Bisphenol Compound	Proprietary	Resist - IX725D3G	0.30	0.00	0.21
Ethyl 3-ethoxyproprionate	763-69-9	Resist - IX725D3G	1.91	0.01	1.32
Ethyl Lactate	97-64-3	EMT 807	2,598.60	17.30	1,797.20
Ethyl Lactate	97-64-3	Resist - IX570EDA9	5.81	0.04	4.02
Ethyl Lactate	97-64-3	Resist - IX725D3G	4.51	0.03	3.12
Isopropanol	67-63-0	IPA - 1 gallon container	78.11	0.52	54.02
Isopropanol	67-63-0	IPA - 55 gallon container	8,950.00	59.59	6,189.86
Monoisopropanolamine	78-96-6	PRS-3000	174.12	1.16	120.42
Napthoquinone diazide esters	68510-93-0	Resist - IX570EDA9	0.57	0.00	0.40
Napthoquinone diazide esters	68510-93-0	Resist - IX725D3G	0.65	0.00	0.45
Novolak Resin	27029-76-1	Resist - IX570EDA9	1.74	0.01	1.20
Novolak Resin	27029-76-1	Resist - IX725D3G	1.30	0.01	0.90
Sulfolane	126-33-0	PRS-3000	696.49	4.64	481.69
TOTAL			15,020.24	100.00	15,231.76
Water Content of Waste (in percent)	31.8				

PIX/SOG WASTE STREAM

CHEMICAL	CAS #	SOURCE (S)	POUNDS USED	PERCENT OF TOTAL	TOTAL IN WASTE (POUNDS)
1-Methyl-2-pyrrolidone	872-50-4	Pix 1400	44.68	63.46	31.73
Acetone	67-64-1	SOG 211	3.57	5.07	2.53
Ethanol	64-17-5	SOG-211	3.21	4.56	2.28
Isopropanol	67-63-0	SOG 211	7.14	10.14	5.07
Methylsiloxane polymer	67762-97-4	SOG-211	1.25	1.77	0.89
N-butyl Alcohol	71-36-3	SOG-211	1.25	1.77	0.89
Water	7732-18-5	Pix 1400	7.88	11.20	5.60
Water	7732-18-5	SOG 211	1.43	2.03	1.01
TOTAL			70.40	100.00	50.00

ZILOG INC.
EMISSION SUMMARIES

Nampa Building 1 and 2 — September 01 to 30, 1996

POLLUTANT		NB1 EMISSIONS [uncontrolled] (lbs/mo.)	NB2 EMISSIONS [uncontrolled] (lbs/mo.)	NB1 & NB2 EMISSIONS [uncontrolled] (lbs/mo.)	NB1 & NB2 EMISSIONS [uncontrolled] (lbs/hr)	SCREENING LEVEL[1] [uncontrolled]	% OF SCREENING LEVEL	PREDICTED AMBIENT CONC. [uncontrolled] (mg/m3)	AAC[2] (mg/m3)	% of AAC [uncontrolled]
VOCs		3,989.35	4,538.36	8,527.71	11.84404	100.000 tons/yr	51.17	N/A	N/A	N/A
HAPs		834.73	434.35	1,269.08	0.60326	25.0 tons/yr	30.46	N/A	N/A	N/A
TAPs										
	Acetone	N/A	505.25	505.25	0.70173	119.000 lbs/hr	0.59	N/A	N/A	N/A
	Ammonia	N/A	90.00	90.00	0.12500	1.200 lbs/hr	10.42	N/A	N/A	N/A
	Arsine	N/A	0.30	0.30	0.00042	0.013 lbs/hr	3.21	N/A	N/A	N/A
	Boron Trifluoride	N/A	1.27	1.27	0.00176	0.200 lbs/hr	0.88	N/A	N/A	N/A
	Catechol	N/A	32.70	32.70	0.04542	1.330 lbs/hr	3.42	N/A	N/A	N/A
	Chlorine	N/A	100.00	100.00	0.13889	0.200 lbs/hr	69.44	N/A	N/A	N/A
	Diborane	N/A	0.69	0.69	0.00095	0.007 lbs/hr	13.63	N/A	N/A	N/A
	Ethanol	N/A	0.93	0.93	0.00129	125.000 lbs/hr	0.00	N/A	N/A	N/A
	Fluroides (HF)	N/A	175.90	175.90	0.24431	0.167 lbs/hr	146.29	0.0009	0.1250	0.72
	Hydrochloric Acid	N/A	124.32	124.32	0.17267	0.050 lbs/hr	345.33	0.0006	0.3750	0.16
	Hydrogen Bromide	N/A	20.00	20.00	0.02778	0.0667 lbs/hr	41.65	N/A	N/A	N/A
	Hydrogen Peroxide	N/A	653.29	653.29	0.90734	0.100 lbs/hr	907.34	0.0030	0.0750	4.00
	Isopropanol	N/A	2,786.30	2,786.30	3.86986	65.300 lbs/hr	5.93	N/A	N/A	N/A
	Methyl Ethyl Ketone	N/A	0	0	0.00000	39.300 lbs/hr	0.00	N/A	N/A	N/A
	N-butyl Alcohol	N/A	0.36	0.36	0.00050	10.000 lbs/hr	0.01	N/A	N/A	N/A
	Nitric Acid	N/A	21.56	21.56	0.02994	0.333 lbs/hr	8.99	N/A	N/A	N/A
	Nitrogen Trifluoride	N/A	44.00	44.00	0.06111	1.930 lbs/hr	3.17	N/A	N/A	N/A
	Phosphine	N/A	1.13	1.13	0.00156	0.027 lbs/hr	5.79	N/A	N/A	N/A
	Phosphoric Acid	N/A	814.16	814.16	1.13077	0.067 lbs/hr	1687.72	0.0040	0.0500	8.00
	Phosphorous Oxycloride	N/A	0	0	0.00000	0.040 lbs/hr	0.00	N/A	N/A	N/A
	Potassium Hydroxide	N/A	0	0	0.00000	0.133 lbs/hr	0.00	N/A	N/A	N/A
	Sulfuric Acid	N/A	3,768.20	3,768.20	5.23362	0.067 lbs/hr	7811.37	0.0190	0.0500	38.00
	Trichloromethane	N/A	0	0	0.00000	.000028 lbs/hr	0.00	N/A	N/A	N/A

1 = VOC and HAP sreening levels for determing Major Sources.
TAP screening emissions levels (EL) from IDAPA 16.01.01. 585, 586.
2 = TAP Acceptable Ambient Concentrations (AAC) from IDAPA 16.01.01. 585, 586.

ZILOG INC.

VOC HAP EMISSION SUMMARY

Company: **Zilog**
Mailing Address: 2601 11th Avenure N. Extension
City/State/Zip: Nampa, Idaho 83687

Emission Limits

Source Description	VOC Emissions (lb/month)[1]	VOC Emissions (ton/yr)	HAP Emissions (lb/month)	HAP Emissions (ton/yr)
Building 1 & 2	11,515	69.09	1,617	9.70

[1] Requested emission rate is 1.5 times the given value .

APPENDIX B

ABBREVIATED AIRS DATA ENTRY SHEET

Name of Facility:	Zilog
AIRS/Permit #:	005-00056
Permit Issue Date:	March 17, 1997

Source/Emissions Unit Name (25 spcs) (Please Use Name As Indicated In Permit)	SCC # (8 digit #)	Air Program (SIP/NESHAP/NSPS/PSD)
Building 1, Boilers #1-# Common Stack	10200603	Tier 2 SIP
Building 1, Emergency Generator #1	20100102	Tier 2
Building 1, Emergency Generator #2	20100102	Tier 2
Building 2, Boiler #1	10200603	Tier 2
Building 2, Boiler #2	10200603	Tier 2
Building 2,Emergency Generator #1	20100102	Tier 2
Building 2,Emergency Generator #2	20100102	Tier 2
Building 1 & 2	39999999	Tier 2